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ABSTRACT

The effects of two intervention methods on academic achievement as represented by spring semester grades in senior nursing curriculum courses were examined. The students were enrolled in a baccalaureate nursing education program at a predominantly black college. The sample of nursing students was divided into three groups based on the intervention received: 34 fourth-year students who received effective test-taking instruction, 36 third-year students who received effective test-taking instructions and learning team methods, and a comparison group of 79 first- and second-year students who received no intervention. The interventions included sessions emphasizing effective test-taking approaches for multiple-choice exams, and cooperative learning through teams (e.g., team efforts for answering practice items, and intergroup competition). Practice tests were used to reinforce the application of suggested test-taking approaches. The results indicated that both interventive modes (effective test-taking instruction and a combined test-taking instruction and cooperative learning approach) were significantly associated with higher academic achievement. (SW)

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EFFECTS OF TWO INTERVENTIVE APPROACHES ON THE ACADEMIC ACHIEVEMENT OF NURSING STUDENTS AT A TRADITIONAL BLACK COLLEGE

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Abstract

The effects of two intervention methods on academic achievement as represented by spring semester grades in senior nursing curriculum courses were examined. The students in the study were enrolled in a bacculaureate nursing education program at a predominantly black college. The results indicated that both interventive modes--effective test-taking instruction and a combined test-taking instruction and cooperative learning approach--were significantly associated with higher academic achievement. Group contrasts showed that the combined approach was associated with the highest mean grade point average.

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The identification of effective methods which along with regular classroom instruction and time spent on learning, can facilitate academic achievement is an important goal of student development. The development of effective intervention procedures could eventuate positive consequences for minority and disadvantaged students. Hence, the development and application of effective intervention approaches would be particularly important for students who, in many cases, have not had the educational, social, and economic opportunities that readily facilitate attaining certain levels of educational and professional or economic success. A number of students who have experienced the conditions described, attend traditionally black colleges. Inasmuch as those experiences often militate against those students reaching their goals or attaining their potential for achievement, many are actively striving, nonetheless, toward those ends despite handicapping experiences. Any intervention approach that counteracts the effects of those handicapping influences should prove particularly meaningful.

One approach that appears promising as a method for facilitating academic achievement in college students is the concept of cooperative learning. Cooperative learning refers to team-learning methods for promoting academic achievement and positive school related attitudes (Sharan, 1980). Although much of the published research in that area has focused on pre-college level students (see Slavin, 1980; Slavin, 1983), the cooperative or team learning approach has been advocated as an approach

that older learners may also derive benefits (see Bligh, 1977; Deutsch, 1953; Graffan, 1964).

Another approach is instructions in test-taking that has been found to be associated with increased test scores (Bajtelsmit, 1977; Frierson, 1982). Effective test-taking as applied here refers to the capacity to accurately demonstrate learned information on evaluative tests. Much of the emphasis regarding test-taking skills instruction, however, has been on standardized test performance, as indicated by reviews from Pike (1978) and Slack and Porter (1980) and studies reported by the FTC (1980) and Scott et al (1980). But the given nature of test-taking skills approaches also seem promising for increasing academic achievement where the application and demonstration of acquired knowledge is necessary, and it warrants investigation. Also, another approach warranting exploation is a combination of effective test-taking instruction and cooperative learning procedures.

The objective of this study was to examine the separate effects of the described two interventive approaches on academic achievement as represented by attained grades in spring semester senior nursing courses. Both approaches -- (1) effective test-taking instruction and (2) a combination of effective test-taking instruction and learning team methods -- were complements to regular instructions. The students involved in the study were senior nursing students attending a traditional black undergraduate college: ninety-three percent of the students were black. Three groups of students were employed: two were treatment or intervention groups and one was the comparison. Consequently, the following questions were addressed:

1) When controlling for previous performance, what associateed effects can intervention have on academic performance?

2) If associated intervention effects are observed, was one method more effective than the other?

METHOD

SAMPLE

The sample consisted of a cohort 152 senior nursing students over a four year period at a traditional black college. The sample (142 black and 10 white students) was divided into three groups based on the intervention received: no intervention (comparison group), effective test-taking instruction (ETI), and effective test-taking instructions and learning team methods (ETI/LT). The comparison group contained 79 students from the classes of the first two years (75 black and 4 white students). The ETI/LT numbered 36 women from the third year (33 black and 3 white students). The ETI group included 37 students from the fourth year (34 black and 3 white students).

All three groups were quite similar relative to Scholastic Aptitude Test verbal and quantitative scores, pre-nursing grade point average (GPA), junior nursing GPA, and fall semester GPA. The comparability of the three groups on those five variables was indicated by the appreciably low and insignificant F values when analysis of variance was applied.

PROCEDURE

Comparison Group: Consisted of Classes From the First Two Years

Students in the two classes preceding the two intervention groups were combined into one group and were used as the comparison group. Students in the comparison group received no intervention as described for the ETI/LT and ETI groups.

ETI/LT Intervention: Occurred in the Third Year

During the spring semester of their senior year, the students in the ETI/LT group received effective test-taking instruction and were involved in learning team group exercises. Those students attended six two-hour sessions over a seven-week period. The sessions consisted of instructions in effective approaches for taking multiple-choice tests, practice exercises to develop better test-taking skills and to engage in self-assessment activities regarding knowledge of content, the formation of learning teams, and the process of working within those groups.

The effective test-taking instruction component involved teaching a systematic method for taking multiple-choice exams. The method was designed to help students apply knowledge on exams and reduce the number of unwarrantable errors due to poor test-taking habits. For each didactic segment on test-taking, there were accompanying practice exercises so that students could attempt the recommended approaches and then receive feedback on their performances. During the practice exercises, the students were requested to focus on accuracy--correctly answering those items they felt certain of. For the latter sessions, to sharpen and reinforce test-taking skills, the practice and feedback phase became predominant. This also involved the use of self-assessment strategies where students also used the practice tests to determine their strengths and weaknesses in the content areas they were studying.

The cooperative learning component involved the formation of eight-member pre-selected (to insure an equivalent mix of students based on prior academic performance) learning teams. This occurred before to the third session. From the third session through the last, all sessions were conducted with students working in their learning team members. The

students were told of the potential useful role cooperative learning could play in facilitating performance. The students were also given suggestions as to how the learrning teams could be productively used and the types of activities they could engage in outside of regular classes. For each of the following sessions, the students were queried on how their teams were working and given additional suggestions for maintaining cohesiveness and productivity. Based on reports from students and also some instructors, the students regularly met with their learning team to go over subject material and to take additional practice tests. During the remaining scheduled intervention sessions, the students went through practice exercises as a single unit to reinforce the team concept. The ETI/LT intervention procedures are summarized below:

Intervention during this period comprised effective test-taking instructions and learning team methods.

- Six two hour sessions over a seven week period
  - First two sessions emphasized effective test-taking approaches for multiple-choice exams.
    - A focus on systematic approaches for taking tests and reducing unwarrantable errors.
    - Employment of practice tests for reinforcing the application of suggested test-taking approaches.
  - The third session involved establishing preselected groups (to insure an equivalent mix based on prior academic performances) of eight members.
  - The remaining three sessions consisted of cooperative learning related exercises and continued reinforcement of effective test-taking approaches via practice tests, team efforts for answering practice test items, and inter-group competition,

e.g., spirited contests to determine which group could attain the highest score on practice exam when using consensus methods for answering the items.

- The students were encouraged to continue to work in their learning groups and to reinforce effective test-taking techniques outside of the intervention sessions up to the end of the semester, well after the intervention sessions had ended.

ETI Intervention: Occurred in the Fourth Year

During the following spring semester, the ETI group received eight hours of test-taking skills instruction: four two-hour sessions over a five-week interval. The sessions were like those described for the ETI/LT group but without the learning team component. The ETI intervention procedures are summarized below:

Intervention during this period consisted only of effective test-taking instruction.

- Four two hour sessions over a five week period were presented.
- The focus was on systematic approaches for taking multiple-choice tests and reducing unwarrantable errors.
- Practice tests were used for reinforcing the application of suggested test-taking approaches.
- The students were encouraged to continue to reinforce effective test-taking techniques via practice tests outside of the intervention sessions up to the end of the semester.

ANALYSIS

Senior nursing curriculum fall semester grade point averages of the students were collected. To control for variability related to previous performance in nursing courses, the fall semester grade point average (FGPA) was used as a covariate to adjust for any differences in academic

achievement as represented by the spring semester grade point average (SGPA), the criterion variable. Through the GLM procedure, appropriate for unequal cell size, analysis of the covariance was used to control for prior academic achievement differences in nursing curriculum courses.

RESULTS

The results of one-way analysis of covariance showed a significant difference between the groups' mean SGPA on the school's nursing curriculum courses with fall semester academic performance controlled ($F = 28.66$, $p < .0001$). As shown in Table I, the adjusted SGPA means for the ETI/LT, ETI, and comparison groups were: 3.1, 2.6, and 2.4, respectively. Group contrasts showed that the adjusted SGPA mean for the ETI/LT group was significantly higher than that of both the comparison group ($p < .0001$) and ETI group ($p < .0001$). The adjusted mean of the ETI group was also significantly higher than that of the control group ($p = .05$).

TABLE I

MEAN FALL GPA AND MEAN AND ADJUSTED SPRING GPA

		FGPA		SGPA		
				Obtained		Adjusted
Group	N	M	SD	M	SD	M
Comparison	79	2.24	0.49	2.39	0.51	2.40
ETI/LT	36	2.21	0.48	3.09	0.49	3.11
ETI	37	2.40	0.50	2.64	0.51	2.59

DISCUSSION

The results showed that the two interventive approaches were associated with increased academic achievement. Both intervention groups had adjusted mean SGPA's significantly higher than the comparison group.

The combination of test-taking skills instruction and coopeative learning, however, had the greatest effect. The mean SGPA for the group receiving the combined approach was also significantly higher than the group receiving test-taking skills instructions only. Thus, based on the SGPA's the ETI/LT method was associated with substantially higher academic achievement outcomes.

Recent cooperative learning research on academic achievement has focused on elementary and secondary school children. This study indicated that cooperative learning approaches are also effective in facilitating the academic achievement of college students. In addition, test-taking skills instruction, which have been associated with preparing students to take standardized tests, appears to have applicability beyond that limited realm; such as the demonstrated positive effect on academic performance. The effects of test-taking skills instructions, however, are apparently further enhanced by the cooperative learning effect.

Since the combined use of both test-taking instructions and learning team methods seem to facilitate learning and enhance performance outcomes at least for upper level college students, the educational implications of this study are widespread despite the rather homogeneous mix of students. Although the sample consisted of primarily black nursing students at a predominantly black institution, and the implications of the study are quite significant as regards minority and disadvantaged students, the implications are also significant for a much broader audience as regards the use of effective test-taking instructions and cooperative learning methods to facilitate academic achievement. Further investigations of the effectis of cooperative learning and test-taking instruction is strongly urged.

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